United States
Environmental Protection
Agency

Office of Public Affairs
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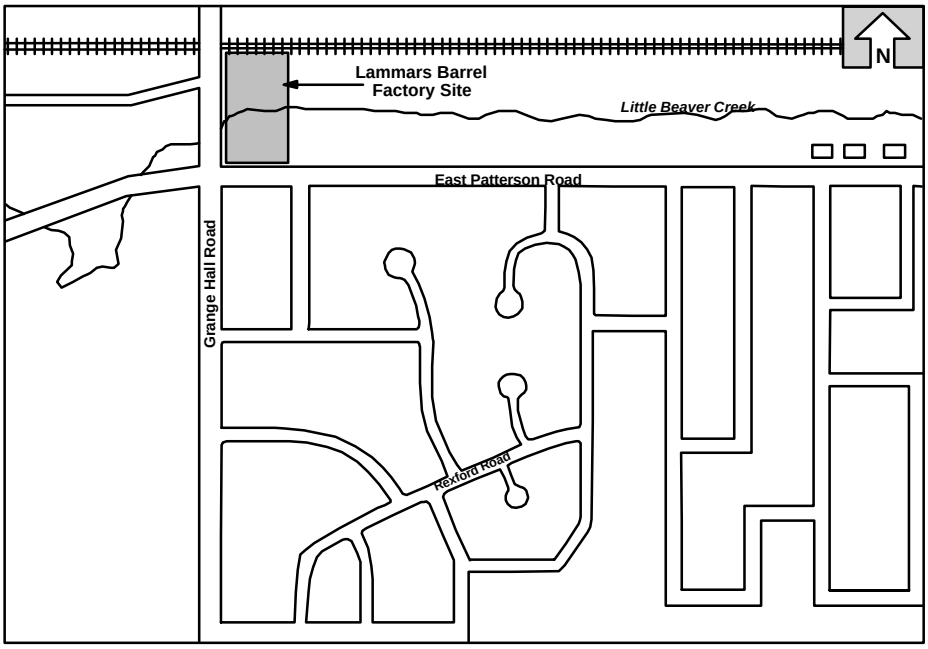
U. S. EPA Proposes Cleanup Plan for Lammars Barrel Factory Site

Beavercreek, Ohio
April 1999



Introduction

This Proposed Plan explains the United States Environmental Protection Agency's (U.S. EPA's) recommendation to address the contamination at the Lammars Barrel Factory **Superfund**[1] site (Lammars). It also summarizes other cleanup alternatives that were considered by U.S. EPA and the Ohio Environmental Protection Agency (Ohio EPA). The site is located at 3990 East Patterson Road on the northeast corner of the intersection of Grange Hall and East Patterson Roads in Beavercreek, Greene County, Ohio.

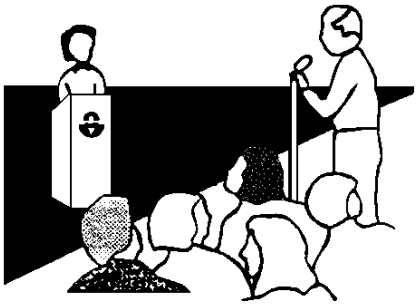
U.S. EPA is issuing this Proposed Plan as part of its public participation responsibilities under section 117 [a] of the Superfund law called the **Comprehensive Environmental Response and Liability Act (CERCLA)**[2]. Based on new information, or public comment, U.S. EPA may modify the recommended alternative or select another alternative presented in this plan.

Opportunities for Public Involvement

Public Comment Period

U.S. EPA will accept written comments on the recommended alternatives presented in this Proposed Plan for the Lammars Barrel Factory site during a 30-day comment period from April 12, to May 12, 1999. A copy of the Engineering Evaluation/Cost Analysis and other site documents are available for review at:

Beavercreek Community Library
3618 Dayton-Xenia Road
Beavercreek, Ohio



Public Meeting

U.S. EPA will hold a public meeting to explain and answer questions about the EE/CA and this Proposed Plan for the Lammars Barrel Factory site. Oral and written comments will be accepted at a public meeting, which will be held:

Thursday, April 22, 1999
7:00 P.M.
Beavercreek Council Chambers at City Hall
1368 Research Park Drive
Beavercreek, Ohio

[1] *Words appearing in **bold type** are defined in a glossary on page 7.*

[2] *Section 300.415 (b) (4) (I) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Section 113 (k) (2) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) require publication of a notice describing U.S. EPA's recommended alternative. The EE/CA must also be made available to the public for comment. This Proposed Plan is a summary of information contained in the EE/CA for the Lammars Barrel Factory site. Please consult the EE/CA for more detailed information.*

U.S. EPA has completed an Engineering Evaluation/Cost Analysis (EE/CA) for the Lammars site. The purpose of this study, begun in 1997, was to investigate the types and amounts of contamination associated with the site, and to evaluate different methods to clean up contamination found. U.S. EPA, with the assistance of the Ohio EPA, evaluated the cleanup alternatives in the report based on several factors, including each alternative's effectiveness in alleviating the potential health and ecological risks resulting from the presence of the contamination, the "implementability" of various remedies, and their cost. A detailed analysis of the alternatives can be found in the EE/CA at the local information repository (see last page).

Background

The Lammars Barrel Company (also known as the Kohnen and Lammars Chemical Company) operated as a chemical recycling facility from 1953 until 1969. During its operation, the facility maintained above-ground storage capacity of over 500,000 gallons as well as a number of vertical tanks, several transport trucks and semitrailers, and approximately 6,000 55-gallon drums. The site is located on a two-acre parcel of land, and is divided into north and south portions by Little Beaver Creek. Presumably, any on-site chemicals are likely due to the Lammars operation or releases from the September 1969 fire. These chemicals have migrated to the soil and ground water.

Ground-water contamination extends from the site outward to the east, south and southeast, and may impact some homes in the Woodhaven subdivision of Beavercreek. Contaminants of primary concern that exceed federal drinking water standards in residential wells include several **volatile organic compounds (VOCs)**, including **trichloroethene**, **tetrachloroethene**, and **vinyl chloride**. The drinking water standard for one or more of these contaminants was exceeded in a number of residential wells. All but three homes that exceeded drinking water standards currently have access to county water for drinking water. On-site soil is also contaminated with VOCs, and heavy metals, including lead, and is considered to be the source of the ground-water contamination.

Site Investigations

Sampling of residential wells began in the mid-1980s. Analyses of approximately 90 residential well samples throughout Beavercreek identified an area of ground-water contamination along the northern end of the Woodhaven subdivision. Sampling revealed that the level of vinyl chloride was very high in some wells. As a result, the Ohio National Guard brought a 350-gallon mobile water tank as an emergency water supply to five homes along Patterson Road.

In November 1985, U.S. EPA began the extension of municipal water lines to nine residences in the Woodhaven subdivision. Currently, county water mains extend down Grange Hall Road, East Patterson Road, Kenora Circle, the north end of Stanwick Drive, and Tralee Trail.

From 1986 to 1992, Ohio EPA re-sampled a limited number of residential wells. In 1992, wells that were previously contaminated still contained chemicals, although levels had decreased somewhat. In the summer of 1997, U.S. EPA conducted three rounds of sampling. A total of 54 residential wells were sampled. VOCs were detected in 28 of the wells sampled, but only nine exceeded federal drinking water standards. Five of the nine wells contained vinyl chloride and were connected to county water in 1985. The other four wells exceeded the standard for trichloroethene; one of these residences has since been connected to the county water supply, and another has installed a full-house carbon filtration system. Although the levels of trichloroethene are above the federal drinking water standard, the health risks are considered to be low. Therefore, U.S. EPA did not take emergency measures to provide alternate water to the affected homes at that time. Sampling was also conducted for metals. While metals were detected in some of the wells sampled, levels were below federal drinking water standards.

Summary of Site Risks

As part of the EE/CA, a streamlined risk assessment was developed for the Lammars site. The risk assessment evaluated the potential risks posed to people and the environment from direct contact with contaminants detected in soils at the Lammars site, with sediment of the Little Beaver Creek, and with ground water. The EE/CA focused on evaluating risks associated with three methods of exposure under *current* conditions: (1) direct contact with site surface soil and stream sediment by adolescent site visitors; (2) direct contact with site surface soils by adult site visitors; and (3) general residential use of ground water by nearby residents. Two potential *future* use scenarios were evaluated also: (4) direct contact with site surface soils by future site workers; and (5) use of site ground water as potable water for future site workers. The risks for each of the five exposure pathways are summarized in Table 1, page 3.

U.S. EPA expresses the likelihood of any kind of cancer resulting from a Superfund site as a probability, for example, 1×10^{-4} or a "1 in 10,000 chance." In other words, for every 10,000 people in the area, an extra cancer case may occur as a result of exposure to site contaminants.

Table 1
Lammars Barrel Factory Site
Summary of Cancer and Non-Cancer Risks for Current and Potential Future Exposures

Exposure Pathway	Cancer Risk	Non-Cancer Risk (Hazard Index)
(1) Teenage Trespassers	1.5×10^{-6}	0.0036
(2) Adult Trespassers	1.5×10^{-7}	0.0002
(3) Residential Use of Ground Water:		
Vinyl Chloride (all homes currently on county water)	9.2×10^{-3}	1.7
Trichloroethene (three homes not on county water)	6.5×10^{-6}	0.944
(4) Future Site Workers - Soil Exposure	2.0×10^{-6}	0.052
(5) Future Site Workers - Using Ground Water for Drinking Water	1.2×10^{-4}	0.26

An extra cancer case means that one more person could get cancer than would normally be expected to from all other causes. U.S. EPA has established a cancer risk range (1×10^{-4} to 1×10^{6} or "1 in 10,000 chance" to "1 in a 1,000,000 chance") in an attempt to set standards for cleanup and human health protection. In general, as cancer risks increase beyond one chance in 10,000, U.S. EPA considers the cancer risk unacceptable.

Some chemicals, called noncarcinogens, may cause other health problems that are not cancer related, such as organ damage, immunological effects, birth defects and skin irritation. U.S. EPA defines acceptable exposure levels as those exposures which would have no adverse effects during a lifetime. This acceptable exposure level is approximately represented by what is referred to as a hazardous index (HI) of 1.0.

The risks associated with exposure to site contamination fall within U.S. EPA's acceptable range with two exceptions. Specifically, the risk associated with drinking water containing vinyl chloride falls outside the acceptable range (3). Also, the risk to future workers that might drink ground water from the site falls outside the acceptable cancer risk range (5). Notably, the risk for residential use of ground water contaminated with trichloroethene is well within the risk range for cancer and within the range for non-cancer effects.

U.S. EPA believes that the above cleanup plan represents the best balance of the three evaluation criteria - effectiveness, implementability, and cost. As a result, U.S. EPA is recommending ***Alternative 2, County Water Line Extension,*** to address contamination in residential wells, and ***Alternative 4, Dual-phase Extraction,*** to address contamination at the Lammars property. After the cleanup is complete, U.S. EPA will require confirmation sampling to confirm the cleanup's effectiveness.

U.S. EPA'S RECOMMENDED CLEANUP PLAN

Alternative 2, County Water Line Extension - This alternative would involve the extension of the county water lines from East Patterson, south along Richfield Center to Rockfield Drive, then east on Rockfield to Rosendale Drive, and then north on Rosendale to the three affected homes. An alternate route would involve extension of the lines through an alley on the east side of the Eagles Lodge and strip mall on Richfield Center to reach Rosendale Drive. This route would require an easement to access the alley and would traverse several backyards. Estimated costs of County water line extension: ~$190,000 for route one; ~$90,500 for route two.

Alternative 4, Dual-phase Extraction - This technology applies a high suction vacuum to remove contaminated liquid and gases form from soils and ground water. Once collected, the vapors and ground water are separated, treated and discharged. Estimated cost of dual-phase extraction: ~$950,000.

Long-term Monitoring - Long-term monitoring of the site and plume of ground water will be performed to ensure the protection of wells currently not adversely impacted.

Summary of Cleanup Alternatives

U.S. EPA has evaluated the following alternatives to address contamination at both the Lammars property and contamination of residential water wells.

Alternatives to Address Residential Well Contamination:

Alternative 1: No Action - This alternative is used as a baseline against which to compare other alternatives. No action is taken under this alternative. Cost: $0.

Alternative 2: County Water Line Extension - (See "U.S. EPA's Recommended Cleanup Plan" on page 3.)

Alternative 3: Point-of-Entry Carbon Filters - This alternative involves the installation of activated carbon filter units at the point-of-entry to a home. Contaminated water passes though a sediment filter to remove particulates and then circulate through a carbon filter. When properly maintained, water exiting the unit does not contain any contaminants above drinking water standards. Cost: ~$5,700.

Alternative 4: Pump and Treat - In this alternative, contaminated ground water is pumped out of the ground from wells near the area of ground-water contamination, treated to remove contaminants, and discharged. Cost: ~$855,000.

Alternatives to Address the Contamination on the Site:

Alternative 1: No Action - This alternative is used as a baseline against which to compare other alternative. No action is taken under this alternative. Cost: $0.

Alternative 2: Soil Vapor Extraction - This technology applies a vacuum to remove contaminants in vapor form from the soil. Cost: ~ $1,000,000.

Alternative 3: Low-temperature Thermal Desorption In this alternative, contaminated soils are heated at relatively low temperatures (200°F to 900°F) so that those contaminants with low boiling points will vaporize. Once in vapor form, the contaminants are then collected and treated. Cost: ~$1,700,000.

Alternative 4: Dual-Phase Extraction - (See "U.S. EPA's Recommended Clean-Up Plan" on page 3.)

Alternative 5: Air Sparging - In this technology, pressurized air is injected into the ground, causing the vaporization of contaminants. Once in vapor form, the contaminants are collected and treated. Cost:~$940,000.

EVALUATION OF ALTERNATIVE

U.S. EPA used three criteria to compare the cleanup alternatives in the EE/CA investigation and to recommend a practical cleanup alternative for the contamination at the Lammars site. The evaluation criteria were:

Effectiveness - This criterion refers to the ability of a cleanup alternative to meet the objectives within the scope of the removal action, especially with regard to the protection of public health and the environment.

Implementability - This criterion considers the technical and administrative feasibility of implementing the cleanup alternative, such as the availability of goods and services.

Cost - This criterion considers estimated capital, operation, and maintenance costs, as well as present worth costs. Present worth costs are an alternative's total cost over time in terms of today's dollars.

Next Steps

U.S. EPA will hold a public meeting to discuss the Proposed Plan for the Lammars Barrel site at 7:00 p.m. on Thursday, April 22, 1999, at the Beavercreek Council Chambers at City Hall, 1368 Research Park Drive, Beavercreek, Ohio. The meeting will be aired live on Beavercreek cable channel 10 and will be replayed several times throughout the comment period. Check with the station for times: 426-5100

U.S. EPA will accept and consider all comments received at the public meeting and during a 30-day public written comment period from April 12, 1999, through May 12, 1999, before developing a final site cleanup plan. All comments received during the comment period will be addressed in a document called a responsiveness summary. The cleanup plan will be described in a final decision document (called an Enforcement Action Memorandum) that, along with the responsiveness summary, will be made available to the public at the Beavercreek library. ■

Use This Space to Write Your Comments

Your input on U.S. EPA's recommended cleanup plan for the Lammars site is important. Public comments will assist U.S. EPA in selecting the final cleanup plan.

You may use the space below to write your comments about U.S. EPA's recommended alternative. Comments must be postmarked by May 12, 1999. You may hand your comments in at the April 22, 1999, public meeting or fold and mail to Bri Bill at the address on page 6 of this fact sheet. You may also fax your comments to (312) 353-1155 or e-mail them to *bill.briana@epa.gov*. If you have any questions, contact Bri Bill, Community Involvement Coordinator, at (312) 353-6646, or toll-free at (800) 621-8431.

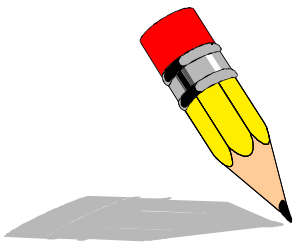
Name

Affiliation

Address

City

State Zip



Lammars Public

Barrel Factory Site Comment Sheet

Detach this page, fold on dashed lines, staple, and mail

Name _____

Address _____

City _____

State _____ Zip _____

Place Stamp Here

FIRST CLASS

Ms. Bri Bill
Community Involvement Coordinator
Office of Public Affairs (P-19)
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Glossary

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - The federal law passed in 1980 to protect human health and the environment. CERCLA provides enforcement powers based on the belief that polluters should take responsibility for cleaning up their own wastes. CERCLA authorizes

the federal government to respond directly to releases of hazardous substance that may endanger human health or the environment. U.S. EPA is responsible for implementing CERCLA.

Superfund - The common name for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The term Superfund referred to a $1.6 billion Hazardous Substance Response Trust Fund established to pay for cleanup and enforcement activities at waste sites. The fund was financed primarily with taxes on crude oil and many commercially used chemicals. In 1986, the Superfund Amendments and Reauthorization Act of 1986 (SARA) was enacted. SARA increased the size of the Trust Fund from $1.6 billion to $8.5 billion.

Tetrachloroethene - A manmade volatile organic compound that is widely used for metal degreasing and in dry cleaning, in some consumer products, and as a starting material for making other chemicals. It can get into the air, soil, or water by leaking or evaporating from storage or from waste sites, and can remain in the air for several months before being broken down into other chemicals or is brought back to the soil and water by rain. Exposure to high concentrations can cause dizziness, headache, and loss of consciousness.

Trichloroethene - A volatile organic compound which is used as a solvent to remove oils and grease from metal products. It is a colorless liquid with an odor similar to ether, and is a manufactured substance which does not occur naturally in the environment. Long-term exposure is suspected of causing cancer, as well as problems of the liver and weakening of the immune system.

Vinyl Chloride - A manmade volatile organic compound that does not occur naturally in the environment. Most of the vinyl chloride produced in the United States used to make polyvinyl chloride (PVC). Short-term exposure to very high levels of vinyl chloride can cause dizziness, lack of muscle coordination, headaches, unconsciousness, or death. Long-term exposure to lower amounts can effect the liver, lungs, circulation in extremities. Vinyl chloride is a known carcinogen.

Volatile Organic Compounds (VOCs) - A type of organic compound that tends to change from a liquid to a gas at relatively low temperatures when exposed to air. As a result of this tendency, VOCs disappear more rapidly from surface water than from ground water. Some VOCs are known to cause cancer in humans. VOCs of concern at the Lammars Barrel Factory site include: tetrachloroethene, trichloroethene, and vinyl chloride.

Mailing List

If you did not receive this fact sheet by mail, you are not on U.S. EPA's mailing list for the Lammars site. To add your name to the list to receive information concerning the site, please fill out this form, detach, and mail to:

Ms. Bri Bill, Community Involvement Coordinator
Office of Public Affairs (P-19J)
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Name _____

Affiliation _____

Street Address _____

City, State _____ Zip _____

For More Information

The EE/CA report and other documents relating to the Lammars site are available for review in the local Information Repository, listed below:

Beavercreek Community Library
Reference Desk
3618 Dayton-Xenia Road

Beavercreek, Ohio

To review previous U.S. EPA fact sheets for this site, please visit the information repository or U.S. EPA web site:

www.epa.gov/region5/sites/

For additional information about this site, you may contact the following representatives:

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U.S. EPA Toll-Free: (800) 621-8431
http://www.epa.gov

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